

Claims

I claim:

1. An apparatus comprising:

an eye tracking system for determining an eye-gaze direction line of a user looking at a display screen of a display device;

an eye-gaze tracking module for extracting the eye-gaze direction from the eye tracking system and for determining an intersection point where the eye-gaze direction line intersects with the display screen;

wherein the eye-gaze tracking module sends the intersection point data to a scalable video decoder; and

wherein the scalable video decoder receives an encoded video stream and provides a first set of higher video resolution data to a first region surrounding the intersection point on the display screen and a second set of lower video resolution data to a second region of the video screen.

2. The apparatus of claim 1, wherein the scalable video decoder provides a video decompression algorithm selected

3 from the group consisting of MPEG-2, MPEG-4 and H.263 for
4 decoding the encoded video stream.

1 3. The apparatus of claim 1, wherein the encoded video
2 stream is selected from the group consisting of graphics,
3 animation, and alpha numeric data.

1 4. The apparatus of claim 1, wherein the second region on
2 the video screen includes a plurality of regions with
3 differing video resolutions.

1 5. The apparatus of claim 1, wherein the eye tracking
2 system includes an eye pupil movement detector.

1 6. The apparatus of claim 1, wherein the second region on
2 the video screen is dimmer than the first region on the video
3 screen.

1 7. An apparatus comprising:

2 an eye tracking system for determining an eye-gaze
3 direction line of a user looking at a display screen of a
4 display device;

5 an eye-gaze tracking module for extracting the eye-gaze
6 direction from the eye tracking system and for determining an
7 intersection point where the eye-gaze direction line
8 intersects with the display screen;

9 wherein the eye-gaze tracking module sends the
10 intersection point data to a scalable video encoder; and

11 wherein the scalable video encoder receives a source
12 video stream and provides an encoded first set of higher
13 video resolution data to a remote video decoder and an
14 encoded second set of lower video resolution data is provided
15 to the remote video decoder.

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1 9. The apparatus of claim 7, wherein the scalable video
2 encoder provides a video compression algorithm selected from
3 the group consisting of MPEG-2, MPEG-4, and H.263 for
4 encoding the source video stream.

1 10. The apparatus of claim 7, wherein the source video
2 stream is selected from the group consisting of graphics,
3 animation, and alpha numeric data.

1 11. The apparatus of claim 7, wherein the second region on
2 the video screen further includes a plurality of regions with
3 differing video resolutions.

1 12. The apparatus of claim 7, wherein the eye tracking
2 system includes an eye pupil movement detector.

1 13. The apparatus of claim 7, wherein the second region of
2 the video screen is dimmer than the first region of the video
3 screen.

1 14. A method comprising:
2 providing a display screen;
3 determining an eye-gaze direction line of a user looking
4 at the display screen;
5 determining an intersection point where the eye-gaze
6 direction line intersects with the display screen;
7 providing a video stream to a scalable video device; and
8 wherein the scalable video device provides a first set
9 of higher video resolution data to a first region surrounding
10 the intersection point on the display screen and a second set
11 of lower video resolution data to a second region of the
12 video screen.

13 15. The method of claim 14, wherein scalable video device is
14 a scalable video decoder or a scalable video encoder.

15 16. The method of claim 14, wherein the video stream is
16 selected from the group consisting of MPEG-2, MPEG-4, and
17 H.263 for encoding the video stream.

18 17. The method of claim 14, wherein the second region on the
19 video screen further includes a plurality of regions with
20 differing video resolutions.

1 18. The method of claim 14, wherein the eye tracking system
2 includes an eye pupil movement detector.

1 19. The method of claim 14, wherein the second region of the
2 video screen is dimmer than the first region of the video
3 screen.

1 20. The method of claim 14, wherein the video stream is an
2 encoded video stream.

1 21. The method of claim 14, wherein the display screen is
2 selected from the group consisting of a computer, a
3 television, and a personal digital assistant.